Georgian Nicolae

Curriculum Vitae

University POLITEHNICA of Bucharest
Faculty of Electronics, Telecommunications
and Information Technology
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WOS ResearcherID: AAZ-6918-2021

Educational Background

2018

PhD Electronic Engineering, Telecommunications and Information Technology, *Faculty of Electronics, Telecommunications and Information Technology – University POLITEHNICA of Bucharest* , Bucharest, Romania.

2016
2018

MSc Multimedia technologies in biometrics and information security applications, *Faculty of Electronics, Telecommunications and Information Technology – University POLITEHNICA of Bucharest* , Bucharest, Romania.

2012
2016

BSc Technologies and Telecommunication Systems, *Faculty of Electronics, Telecommunications and Information Technology – University POLITEHNICA of Bucharest* , Bucharest, Romania.

Theses

PhD Thesis – *In Progress*

TITLE Machine Learning Applications in Power MOSFET Design

ADVISOR Prof. Dr. Eng. Corneliu Burileanu

COLLABORATOR Infineon Technologies Romania

MSc Thesis

TITLE Sensitivity Analysis of Design Parameters Over The Electro-Thermal Limit of Safe Operating Area for Power and Low Voltage MOSFET Transistors

ADVISOR Prof. Dr. Eng. Corneliu Burileanu

COLLABORATOR Infineon Technologies Romania

BSc Thesis

TITLE Human-Robot Voice Based Interface For Romanian Language On NAO Humanoid Robot

ADVISORS Prof. Dr. Eng. Dragoș Burileanu & Conf. Dr. Eng. Horia Cucu

Professional Experience

2023 **Research Assistant**, *Proiect VOITA – SISTEM INFORMATIC INTEGRAT DE VOICE TO TEXT ANALYTICS*, Research Grant: 450/390126/31.03.2023, MySMIS: 156387.

2023 **Research Assistant**, *Efficiency and Effectiveness of Circuit Sizing using Machine Learning Methods (EECV-ML)*, Research Grant: 420224484, Partner: Infineon Technologies.

2021 **Research Assistant**, *Laboratory of Robots - Autonomous and Adaptive Systems*, CAMPUS Research Institute, University Politehnica of Bucharest.

2022 **2023** **Research Assistant**, *Efficiency and Effectiveness of Circuit Verification using Machine Learning Methods (EECV-ML)*, Research Grant: 4600001536, Partner: Infineon Technologies.

2020 **2022** **Research Assistant**, *Embedded Platform For EMG Acquisition with Artificial Intelligence Software Toolkit (EMGP-AI)*, Research Grant: 425PED/2020, Funding Agency: UEFISCDI.

2018 **2022** **PhD Student**, *Infineon Technologies Romania*, Machine Learning for Semiconductor Technologies Topics.

2018 **2020** **Research Assistant**, *Intelligent Systems for Video and Audio Analysis — Technologies and Innovative Video Systems for Person Re-identification and Analysis of Dissimulated Behavior (SPIA-VA)*, Research Grant: 2SOL/2017, Funding Agency: UEFISCDI.

2016 **2019** **Master Working Student**, *Infineon Technologies Romania*, Power and Low Voltage Semiconductor Topics.

2014 **2016** **Student Intern**, *Speech and Dialogue (SpeeD) Laboratory*, Human-Robot interaction topics.

Research Interests

ROBOTICS & AUTOMATION
- Humanoid Robots
- Human-Robot Interfaces
- Robot Navigation
- Adaptive and Intelligent Systems

SEMICONDUCTOR TECHNOLOGIES
- Simulation
- Modelling and Meta-modelling
- Design Optimization
- Pre-silicon and Post-silicon Verification
- Machine Learning for Semiconductors

ARTIFICIAL INTELLIGENCE
- Machine Learning Algorithms
- Deep Learning Algorithms
- Neuromorphic Devices & Systems

Affiliations

University   PhD Student at University POLITEHNICA of Bucharest, Faculty of Electronics, Telecommunications and Information Technology

IEEE   Board Member at IEEE Region 8 Robotics and Automation Society, UPB Student Branch Chapter

Languages

Romanian   Native

English   Fluent

German   Basic   *Good Understanding, Basic Speaking, Basic Writing*

Skills

Programming   MATLAB, Python, C/C++, Visual Basic, Assembly, Javascript

Tools   GitHub, Visual Studio, PyCharm, Unix/Windows, ROS

Other Skills   Communication, Organization, Writing, Team-working

Bachelor Theses Co-advisor

2021   **Cardoși Vlad**, "Text-to-Speech Application for Developing Therapy Programs Destined to Autism Disorder Children".

2020   **Petcu Ana-Maria**, "Smart Application for Developing Therapy Programs Destined to Autism Disorder Children".

2019   **Pișcoci Anca-Maria**, "Smart Platform for Embedded Systems with Applications in Therapy of Children with Autism Spectrum Disorders".

2019   **Saru Lisa-Marie**, "Target Recognition and Tracking System Integrated into the Nao Robot".

2019   **Răducanu Ruxandra-Ioana**, "Voice Recognition System Implemented on NAO Humanoid Robot".

2018   **Avram Diana**, "Object Detection and Recognition System Embedded on a NAO Robot".

2018   **Predescu Rebeca Grațiela**, "Speaker Recognition on Embedded System (on NAO Robot)".

Events & Awards

2021   **Member**, Organizing Comittee, 11th Conference on Speech Technology and Human-Computer Dialogue (SpeD 2021).

2021   **Speaker**, and member of organizing comittee, IEEE Robotics and Automation Society UPB Student Branch Chapter Event: "Preparing for the Future: Technical Challenges of Robots and Communication Systems" at SpeD 2021.

2020   **Participant**, International Conference on Robotics and Automation (ICRA 2020), 31 May - 15 August 2020.

2019 **Participant**, AcaDay, Education Event at SoftBank Robotics Europe, Paris, April 17th 2019.

2018 **Participant**, 2nd International Summer School on Deep Learning (DeepLearn 2018), Genova, Italy, 23-27 July, 2018.

2018 **Participant**, *"Sensitivity Analysis of Design Parameters Over The Electro-Thermal Limit of Safe Operating Area for Power and Low Voltage MOSFET Transistors"*, Student Scientific Session, Faculty of Electronics, Telecommunications and Information Technology - University POLITEHNICA of Bucharest.

2018 **Participant – 2ⁿᵈ prize**, *"Efficient Convolutional Neural Networks in Robots with Limited Computational Resources: Object Recognition by NAO"*, Student Scientific Session, Faculty of Electronics, Telecommunications and Information Technology - University POLITEHNICA of Bucharest.

2017 **Poster Author**, "Intelligent Human Computer Interaction Applications using NAO Robots", 9th Conference on Speech Technology and Human-Computer Dialogue (SpeD 2017).

2015 **Participant – 2ⁿᵈ prize**, *Humanoid Robot Contest at ROBOCHALLENGE 2015.*

2015 **Participant**, *"Interactive BATTLESHIPS Game for NAO Robot"*, Student Scientific Session, Faculty of Electronics, Telecommunications and Information Technology - University POLITEHNICA of Bucharest.

2014 **2015** **Member**, *Committee designated with developing regulations of Humanoid Robot Contest at ROBOCHALLENGE.*

2013 **Participant**, *"Electronic Scale using Arduino"*, MINERVA Student Session, Faculty of Electronics, Telecommunications and Information Technology - University POLITEHNICA of Bucharest.

Publications

[1] G. Nicolae, H. Cucu, C. Burileanu, A. Buzo, C. Feuerbaum, and G. Pelz, "Automatic design optimization of microelectronic power switches," *UNIVERSITY POLITEHNICA OF BUCHAREST SCIENTIFIC BULLETIN SERIES C-ELECTRICAL ENGINEERING AND COMPUTER SCIENCE*, vol. 85, no. 1, pp. 377–388, 2023.

[2] G. Nicolae, A. Buzo, H. Cucu, C. Burileanu, and G. Pelz, "Manufacturing variation estimation of on resistance in power semiconductors," in *2022 18th International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD)*, (Villasimius, Sardinia, Italy), pp. 1–4, 2022.

[3] G. Nicolae, A. Buzo, C. Feuerbaum, C. Diaconu, H. Cucu, G. Pelz, and C. Burileanu, "Metamodel-based prediction of on resistance for microelectronic power switches," in *2021 IEEE Electrical Design of Advanced Packaging and Systems (EDAPS)*, (Virtual Conference), pp. 1–3, 2021.

[4] G. Nicolae, C. Boianceanu, A. Buzo, C. Diaconu, V, H. Cucu, G. Pelz, and C. Burileanu, "Automatic Parameter Tuning in Finite Element Analysis of Semiconductor Packages," in *CAS 2020 PROCEEDINGS: 2020 INTERNATIONAL SEMICONDUCTOR CONFERENCE*, International Semiconductor Conference, pp. 41–44, 2020. 43rd International Semiconductor Conference (CAS), ELECTR NETWORK, OCT 07-09, 2020.

[5] A. Gaita, G. Nicolae, E. C. David, A. Buzo, C. Burileanu, and G. Pelz, "A SIFT-based Waveform Clustering Method for aiding analog/mixed-signal IC Verification," in *2020 IEEE EUROPEAN TEST SYMPOSIUM (ETS 2020)*, Proceedings of the European Test Symposium, 2020. 25th IEEE European Test Symposium (ETS), ELECTR NETWORK, MAY 25-29, 2020.

[6] G. Nicolae, C. Vladeanu, L.-M. Saru, C. Burileanu, R. Grozavescu, G. Craciun, S. Druga, and M. Hatis, "Programming the NAO Humanoid Robot for behavioural therapy in Romania," in *The Romanian Journal of Child and Adolescent Psychiatry*, vol. 7 of *The Romanian Journal of Child and Adolescent Psychiatry*, pp. 23–30, 2019.

[7] A. Gaita, G. Nicolae, A. Radoi, and C. Burileanu, "Chainsaw Sound Detection based on Spectral Haar Coefficients," in *PROCEEDINGS OF ELMAR-2018: 60TH INTERNATIONAL SYMPOSIUM ELMAR-2018*, ELMAR Proceedings, pp. 139–142, 2018. 60th ELMAR International Symposium, Zadar, CROATIA, SEP 16-19, 2018.

[8] G. Nicolae, A. Gaita, A. Radoi, and C. Burileanu, "A Method for Chainsaw Sound Detection Based on Haar-like Features," in *2018 41ST INTERNATIONAL CONFERENCE ON TELECOMMUNICATIONS AND SIGNAL PROCESSING (TSP)*, pp. 714–718, , 2018. 41st International Conference on Telecommunications and Signal Processing (TSP), Athens, GREECE, JUL 04-06, 2018.